



# CeC X – Run 22

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# CeC-X plan for Run 22

- ❑ We followed recommendations RHIC Program Advisory Committee:
  - ❑ Early completion of the CeC X to allow STAR using of increasing luminosity towards the end of RHIC run
  - ❑ 36-hrs blocks of dedicated time reduce loss of time for RHIC switching between pp to Au-ion operations
- ❑ Plan for CeC Run 22 with 16 days of dedicated time is fully developed.
  - ❑ Restore operation of CeC accelerator
  - ❑ Establish electron beam KPP (including low energy jitter)
  - ❑ Align electron and ion beams trajectories and  $\gamma$ -factors
  - ❑ Restore operation of the high-gain Plasma-Cascade Amplifier
  - ❑ Attempt to demonstrate/investigate longitudinal CeC
  - ❑ Decision point: continue investigate longitudinal CeC or switch to 3D cooling CeC studies
- ❑ Key improvements to the CeC operations in Run 22:
  - ❑ New seed laser for reduced time jitter improving the electron beam energy stability
  - ❑ Strengthen CeC operation group by adding some scientists from LEReC group

# Draft CeC X dedicated time schedule for Run 21

- This is the draft plan, which does not show back-ground CeC operation, which will be conducted in parallel with with RHIC stores
- It assumes that
  - All CeC systems are available at the beginning of the Run
  - Majority of the CeC activities will be completed by end of January 2022
  - STAR agrees on two consecutive maintenances on November 24 and Decemebr 1.

<b>Draft</b>				
<b>Run 22</b>		Note: Assumption that we have one 36 hrs chanks per week	<b>Dedicated time</b>	<b>Dedicated time</b>
			<b>hrs</b>	<b>days</b>
	Activities		<b>384</b>	<b>16</b>
Monday, November 15, 2021		<b>Start of the run</b>		
Thursday, November 18, 2021	Start of the run	<b>Restoring CeC accelerator operation;</b>		
Thursday, November 25, 2021		<b>Using 30 GeV p to measure axes of solenoids 1,2,3,4</b>	12	0.5
<b>Wednesday, November 24, 2021</b>	<b>Maintenance</b>	<b>Propagating beam in parallel with pp stores</b>		
Thursday, November 25, 2021		<b>Align and survey solenoids 1,2,3,4</b>		
		<b>Measuremnts of aligned solenoids, chaning cables</b>		
		<b>Measuring axes of solenoids 5,6,7</b>	12	0.5
<b>Wednesday, December 1, 2021</b>	<b>Maintenance</b>			
Thursday, December 2, 2021		<b>Align and survey solenoids 5,6,7</b>		
Thursday, December 9, 2021		<b>Measuremnts of aligned solenoids,</b>	12	0.5
Thursday, December 16, 2021		<b>Final cabling, ramp and propagate of e-beam</b>	36	1.5
<b>Wednesday, December 15, 2021</b>	<b>Maintenance</b>	<b>Establishing PCA, energy stabilization</b>	36	1.5
Thursday, December 23, 2021				
<b>Wednesday, December 29, 2021</b>	<b>Maintenance</b>	<b>Optimizing PCA, spectral measurments</b>	36	1.5
Thursday, December 30, 2021		<b>Removing undulator</b>		
Thursday, January 6, 2022		<b>Establishing recombination, starting energy scan</b>	36	1.5
Thursday, January 13, 2022		<b>Scan 1</b>	36	1.5
Thursday, January 20, 2022		<b>Scan 2</b>	36	1.5
Thursday, January 27, 2022		<b>Scan 3</b>	36	1.5
		<b>Decision point</b>	36	1.5
<b>Monday, January 31, 2022</b>		<b>1D ? or 3D cooling modifications</b>	12	0.5
Monday, February 7, 2022		Working on improving e-beam and other experiments		
Monday, February 14, 2022		Working on improving e-beam and other experiments		
Monday, February 21, 2022		Working on improving e-beam and other experiments		
Monday, February 28, 2022		Working on improving e-beam and other experiments		
Monday, March 7, 2022		Working on improving e-beam and other experiments		
Monday, March 14, 2022		<b>Reserved CeC time (1D or 3D cooling?)</b>	24	1
Monday, March 21, 2022		<b>Reserved CeC time (1D or 3D cooling?)</b>	24	1